UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,327	03/29/2004	Paul James Broyles III	200313477-1	2718

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EXAMINER
CHERRY, STEPHEN J

ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 12/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

			Application No.	Applicant(s)
			10/812,327	BROYLES ET AL.
Office Action Summary			Examiner	Art Unit
			Stephen J. Cherry	2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>21 November 2001</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-34</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-34</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>29 March 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10-24-2005 has been entered.

Claim Objections

Claim 10 is objected to because of the following informalities:

1. Claim 10 recites, "The method of claim 1, further comprising data regarding temperature operating parameters". Method steps should define active steps, such as "accessing" or "storing" data regarding temperature.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, and 8-34 are rejected under 35 U.S.C. 102(b) as being anticipated by

U.S. Patent 6,134,667 to Suzuki et al.

Claim 1 recites, as disclosed by Suzuki:

1. A method for cooling a storage device contained in a computer, the

method comprising:

determining the temperature of the storage device ('667, col. 5, line 61);

and

adjusting computer operation so as to reduce the temperature of the

storage device if that temperature is deemed to be too high ('667, col. 5,

line 60).

Claim 2 recites, as disclosed by Suzuki:

2. The method of claim 1, wherein determining the temperature of the

storage device comprises measuring the temperature of the storage

device using a temperature sensor provided in or on the storage device

('667, fig. 1, sensor a-c).

Claim 3 recites, as disclosed by Suzuki:

3. The method of claim 1, wherein measuring the temperature of the

storage device comprises measuring the temperature of the storage

device using a thermal diode of the storage device ('667, fig. 1, sensor a-

c).

Claim 4 recites, as disclosed by Suzuki:

4. The method of claim 1, wherein adjusting computer operation so as to

reduce the temperature of the storage device comprises increasing the

speed of a fan contained within the computer ('667, col. 6, line 28).

Claim 5 recites, as disclosed by Suzuki:

5. The method of claim 1, wherein adjusting computer operation so as to

reduce the temperature of the storage device comprises adjusting the

operation of a processor contained within the computer ('667, fig. 9, CPU

speed).

Claim 6 recites, as disclosed by Suzuki:

6. The method of claim 5, wherein adjusting the operation of a processor

comprises reducing the clock speed of the processor ('667, fig. 9, CPU

speed).

Claim 8 recites, as disclosed by Suzuki:

8. The method of claim 1, wherein adjusting computer operation so as to

reduce the temperature of the storage device comprises shutting down the

computer ('667, col. 3, line 66 and col. 8, line 11).

Claim 9 recites, as disclosed by Suzuki:

9. The method of claim 1, wherein adjusting computer operation so as to

reduce the temperature of the storage device comprises first increasing

the speed of a fan contained in the computer and, if the storage device is

later determined to still be too hot, reducing one or both of a clock speed

of and a voltage provided to a processor contained in the computer and, if

the storage device is still later determined to be too hot, shutting down the

computer ('667, fig. 11 and col. 10, line 52).

Claim 10 recites, as disclosed by Suzuki:

10. The method of claim 1, further comprising data regarding temperature

operating parameters of the storage device and using that data to

determine whether the storage device is or is not too hot ('667, fig. 7 and

temperature).

Claim 11 recites, as disclosed by Suzuki:

11. A method for cooling a storage device contained in a computer, the

method comprising:

periodically measuring the temperature of the storage device with a

temperature sensor provided in or on the storage device ('667, col. 5, line

61); and

periodically providing temperature data including the measured

temperature and temperature operating parameters for the storage device

to a basic input/output system (BIOS) so that the BIOS can control

operation of the computer in an effort to cool the storage device ('667, col.

5, line 60 and col. 5, line 26).

Claim 12 recites, as disclosed by Suzuki:

12. The method of claim 11, wherein periodically measuring the

temperature of the storage device comprises measuring the temperature

of the storage device in response to commands received by a storage

device driver stored in memory of the computer ('667, col. 5, line 59).

Claim 13 recites, as disclosed by Suzuki:

13   The method of claim 11, wherein periodically measuring the

temperature of the storage device comprises measuring the temperature

of the storage device using a thermal diode ('667, fig. 1, sensor a-c).

Claim 14 recites, as disclosed by Suzuki:

14. The method of claim 11, wherein periodically providing temperature

data comprises providing the data to a storage device driver of the

computer that provides the data to the BIOS ('667, fig. 1, sensor a-c).

Claim 15 recites, as disclosed by Suzuki:

15. The method of claim 11, wherein periodically providing temperature

data comprises providing information regarding an ideal temperature

operating range and a critical temperature to the BIOS ('667, fig. 7 and

temperature).

Claim 16 recites, as disclosed by Suzuki:

16. A system for cooling a storage device in a computer, the system

comprising:

means for measuring the temperature of the storage device, the means

being directly associated with the storage device ('667, fig. 1, sensor a-c);

means for sending the measured temperature ('667, fig. 1, ref. 16); and

means for adjusting operation of the computer in relation to the measured

temperature ('667, col. 5, line 60).

Claim 17 recites, as disclosed by Suzuki:

17. The system of claim 16, wherein the means for measuring comprise a

temperature sensor provided in or on the storage device ('667, fig. 1,

sensor a-c).

Claim 18 recites, as disclosed by Suzuki:

18. The system of claim 17, wherein the means for measuring comprise a

thermal diode ('667, fig. 1, sensor a-c).

Claim 19 recites, as disclosed by Suzuki:

19. The system of claim 17, wherein the means for sending the measured

temperature comprise a controller of the storage device ('667, fig. 1, ref.

16).

Claim 20 recites, as disclosed by Suzuki:

20. The system of claim 17, wherein the means for adjusting operation of

the computer comprise a basic input/output system (BIOS) ('667, col. 5,

line 60 and col. 5, line 26).

Claim 21 recites, as disclosed by Suzuki:

21. The system of claim 20, wherein the BIOS is configured to increase

the speed of a fan contained in the computer, reduce one or both of a

clock speed of and a voltage provided to a processor contained in the

computer, or shut down the computer if the storage device is too hot ('667,

fig. 11 and col. 10, line 52).

Claim 22 recites, as disclosed by Suzuki:

22. A system stored on a computer-readable medium, the system

comprising:

logic configured to read a temperature of a storage device ('667, fig. 1, ref.

16);

logic configured to command the logic configured to read a temperature to

read that temperature ('667, fig. 1, 18); and

logic configured to receive the read temperature and to control operation

of a computer relative to the read temperature ('667, col. 5, line 60).

Claim 23 recites, as disclosed by Suzuki:

23. The system of claim 22, wherein the logic configured to read a

temperature is configured to reside in memory of the storage device ('667,

col. 5, line 60 and col. 5, line 26).

Claim 24 recites, as disclosed by Suzuki:

24. The system of claim 22, wherein the logic configured to command the

logic configured to read a temperature comprises a storage device driver

('667, col. 5, line 60 and col. 5, line 26).

Claim 25 recites, as disclosed by Suzuki:

25. The system of claim 22, wherein the logic configured to receive the

read temperature and to control operation of a computer comprises a

computer basic input/output system (BIOS) ('667, col. 5, line 60 and col. 5,

line 26).

Claim 26 recites, as disclosed by Suzuki:

26. A thermal monitor, comprising: logic configured to command a

storage device driver to periodically collect temperature data from a

storage device ('667, col. 5, line 60); and

logic configured to provide the collected temperature data to a computer

basic input/output system (BIOS) to enable the BIOS to control operation

of the computer in a manner so as to cool the storage device ('667, col. 5,

line 60 and col. 5, line 26).

Claim 27 recites, as disclosed by Suzuki:

27. A computer basic input/output system (BIOS), comprising: logic

configured to receive a temperature of a storage device measured by the

storage device ('667, fig. 1, ref. 16);

logic configured to compare the measured temperature with temperature

operating parameters for the storage device ('667, fig. 7); and

logic configured to control operation of a computer in which the storage

device is provided in a manner that reduces the temperature of the

storage device ('667, col. 5, line 60).

Claim 28 recites, as disclosed by Suzuki:

28. The BIOS of claim 27, wherein the logic configured to control

operation of a computer comprises logic configured to increase the speed

of a fan contained in the computer, reducing one or both of a clock speed

of and a voltage provided to a processor contained in the computer, or

shut down the computer if the storage device is too hot ('667, fig. 11 and

col. 10, line 52).

Claim 29 recites, as disclosed by Suzuki:

> 29. The method of claim 1, wherein the storage device is one of a floppy
>
> drive, an optical drive, or a hard drive ('667, fig. 1, sensor b).

Claim 30 recites, as disclosed by Suzuki:

> 30. The method of claim 11, wherein the storage device is one of a floppy
>
> drive, an optical drive, or a hard drive ('667, fig. 1, sensor b).

Claim 31 recites, as disclosed by Suzuki:

> 31. The system of claim 16, wherein the storage device is one of a
>
> floppy drive, an optical drive, or a hard drive ('667, fig. 1, sensor b).

Claim 32 recites, as disclosed by Suzuki:

> 32. The system of claim 22, wherein the storage device is one of a floppy
>
> drive, an optical drive, or a hard drive ('667, fig. 1, sensor b).

Claim 33 recites, as disclosed by Suzuki:

> 33. The monitor of claim 26, wherein the storage device is one of a floppy
>
> drive, an optical drive, or a hard drive ('667, fig. 1, sensor b).

Claim 34 recites, as disclosed by Suzuki:

> 34. The BIOS of claim 27, wherein the storage device is one of a floppy
>
> drive, an optical drive, or a hard drive ('667, fig. 1, sensor b).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S.

Patent 6,134,667 to Suzuki et al in view of U.S. Patent 6,415,388 to Browning et al.

The claim recites, as disclosed by Suzuki:

> determining the temperature of the storage device ('667, col. 5, line 61);
>
> and
>
> adjusting computer operation so as to reduce the temperature of the
>
> storage device if that temperature is deemed to be too high ('667, col. 5,
>
> line 60);
>
> wherein adjusting computer operation so as to reduce the temperature of
>
> the storage device comprises adjusting the operation of a processor
>
> contained within the computer ('667, fig. 9, CPU speed);

However, Suzuki does not disclose reducing voltage to the processor.

The claim further recites, as disclosed by Browning:

> wherein adjusting the operation of a processor comprises reducing a
>
> voltage provided to the processor ('388, fig. 6, ref. 350).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the voltage reduction of Browning with the invention of Suzuki to allow operation at lower power consumption levels (see '388, col. 4, line 66).

Response to Arguments

Applicant's arguments with respect to claims 1-34 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Cherry whose telephone number is (571) 272-2272. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
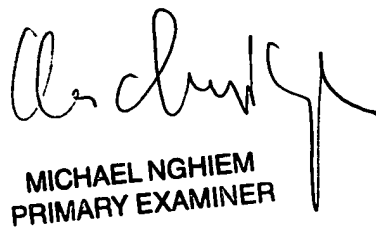
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SJC

MICHAEL NGHIEM
PRIMARY EXAMINER